



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/560,188 | 02/20/2007 | Jan Herman Laarhuis | 242597 | 1493 |
| 23460 7590 07/22/2009 LEYDIG VOIT & MAYER, LTD TWO PRUDENTIAL PLAZA, SUITE 4900 180 NORTH STETSON AVENUE CHICAGO, IL 60601-6731 | | | | |
| EXAMINER | | | | |
| KAO, JUTAI | | | | |
| ART UNIT | | PAPER NUMBER | | |
| 2416 | | | | |
| MAIL DATE | | DELIVERY MODE | | |
| 07/22/2009 | | PAPER | | |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/560,188

Applicant(s)

LAARHUIS ET AL.

Examiner

JUTAI KAO

Art Unit

2416

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 May 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) 16-26 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 December 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-856)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date _____

DETAILED ACTION

Election/Restrictions

1. Claims 16-26 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 05/12/2009.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the claim element of claim 10, reciting "wherein the number of intersubnetwork connections is equal to the number of end nodes in the first subnetwork connectable with the second subnetwork via the intersubnetwork connections" must be shown or the feature(s) canceled from the claim(s). As shown in Fig. 4, three intersubnetwork connections 301-303 are shown and 3*p connectable end nodes 320-325 are shown. No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate

changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. The disclosure is objected to because of the following informalities: claimed subject matter not shown.

The claim element of claim 10, reciting "wherein the number of intersubnetwork connections is equal to the number of end nodes in the first subnetwork connectable with the second subnetwork via the intersubnetwork connections" must be shown or the feature(s) canceled from the claim(s). As shown in Fig. 4, three intersubnetwork connections 301-303 are shown and 3*p connectable end nodes 320-325 are shown.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claim 10 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The claim element of claim 10, reciting "wherein the number of intersubnetwork connections is equal to the number of end nodes in the first subnetwork connectable with the second subnetwork via the intersubnetwork connections" must be shown or the feature(s) canceled from the claim(s). As shown in Fig. 4, three intersubnetwork connections 301-303 are shown and 3*p connectable end nodes 320-325 are shown.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 5-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 5, line 4 recites "with the nodes, is...", wherein it is unclear which "nodes" is being referred to as the independent claim recites "a plurality of nodes in the first subnetwork" as well as "a respective node".

Regarding claim 6, it is unclear what is meant by "a regular connection" as recited in line 2 of the claim.

8. The claims are generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors.
9. Regarding claim 7, the phrase "such as" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Claim 8 is rejected as it depends on rejected claim 7.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

11. Claims 1-2, 7 and 11-15 rejected under 35 U.S.C. 102(e) as being anticipated by Mueller (US 7,068,687).

Mueller disclose a method for transmitting concatenated data signals including the following features.

Regarding claim 1, a telecommunication network (see Fig. 1), comprising a first subnetwork (see the subnetwork on ROUT 1 side of Fig. 1); a plurality of nodes in the first subnetwork (see ROUT1 in Fig. 1, which represents one of the plurality of the

nodes, the other nodes are not explicitly shown, but is included as shown by the dotted lines at the input of WDM1); a plurality of intersubnetwork connections for connection (see IMA1-4 and IME1-4 in Fig. 1) of the first subnetwork to a second subnetwork (see subnetwork at ROUT2 side of Fig. 1, connected to subnetwork 1 via WDD2, MUX), each intersubnetwork connection with a first subnetwork side (the IMAs of Fig. 1) and second subnetwork side (the IMEs of Fig. 1); a plurality of inverse multiplexers (see DMUX in Fig. 1; and see "inverse multiplexer" recited in column 1, line 67 to column 2, line 1), each of which is connected with a respective node (see ROUT 1 in Fig. 1), which inverse multiplexers are arranged for receiving an original data signal transmitted from the respective node to the second subnetwork (see DSA in Fig. 1) and inverse multiplexing the original data signal to a plurality of inverse multiplex data signals for transmitting the original data signal via the plurality of intersubnetwork connections in an inverse-multiplexed manner (see DMUX, converting the DSA into IMA1-4 as shown in Fig. 1); a plurality of system multiplexers (see MUX shown in Fig. 1), each connected with output of a plurality of the inverse multiplexers and at least one of the intersubnetwork connections (see MUX connected to the IME1-4, which are originated from IMA1-4, as shown in Fig. 1), wherein each system multiplexer is connected with a different intersubnetwork connection (see Fig. 1; wherein the connection of 4 IME to a Mux is repeated by the dotted line representation, such that each Mux is connected to four different IME), and the system multiplexers are arranged for transmitting the inverse multiplex data signals to the second subnetwork (see Mux in Fig. 1, transmitting IME1-4 to ROUT2), wherein the inverse multiplex data signals are each transmitted

over a different intersubnetwork connection (see IME1-4 in Fig. 1); wherein each of the system multiplexers is arranged to receive and transmit inverse multiplex data signals from each of the inverse multiplexers (see Fig. 1, wherein the Mux receives inverse multiplexed data originated from the inverse multiplexer DMUX, via the intermediate WDD/WDMs).

Regarding claim 2, a telecommunication network (see Fig. 1), comprising a first subnetwork (see the subnetwork on ROUT 1 side of Fig. 1); a plurality of nodes in the first subnetwork (see ROUT1 in Fig. 1, which represents one of the plurality of the nodes, the other nodes are not explicitly shown, but is included as shown by the dotted lines at the input of WDM1); a plurality of intersubnetwork connections for connection (see IMA1-4 and IME1-4 in Fig. 1) of the first subnetwork to a second subnetwork (see subnetwork at ROUT2 side of Fig. 1, connected to subnetwork 1 via WDD2, MUX), each intersubnetwork connection with a first subnetwork side (the IMAs of Fig. 1) and second subnetwork side (the IMEs of Fig. 1); a plurality of inverse demultiplexers (see MUX in Fig. 1), each with an input which is connected with a respective node (see MUX being connected with ROUT1 of the first subnetwork via a series of multiplexers/demultiplexers), which inverse demultiplexers are arranged for receiving a plurality of inverse multiplex data signals (see IME 1-4 in Fig. 1), recovering an original signal transmitted from the second subnetwork from the inverse multiplex data signals and presenting the recovered original signal to the respective node of the receiving inverse demultiplexer (see Fig. 2, wherein the MUX recovers the original signal as DSE from the IME1-4 received from the respective nodes); a plurality of system

demultiplexers (see DMUX in Fig. 1), each connected with inputs of a plurality of the inverse demultiplexers (see DSA as inputs in Fig. 1) and at least one of the intersubnetwork connections (see IMA1-4 in Fig. 1), wherein each system demultiplexer is connected with a different intersubnetwork connection (see Fig. 1, no overlapping of intersubnetwork connection of IMA1-4), and the system demultiplexers are arranged for receiving the inverse multiplex data signals from the second subnetwork (see connection shown in Fig. 1, and see "analogous facility is provided for transmitting signals in the reverse direction" recited in column 3, lines 10-18; that is, the connection is to be bidirectional, and thus the DMUX can also receive the IMA1-4 from the second subnetwork of ROUT2); wherein the inverse multiplex data signals are each received over a different intersubnetwork connection (see IMA1-4); wherein each of the system demultiplexer has connections to transmit inverse multiplex data signals to each of the inverse demultiplexers (see Fig. 1, wherein the Mux transmits/receives inverse multiplexed data originated from the inverse multiplexer DMUX, via the intermediate WDD/WDMs).

Regarding claim 7, wherein at least one of the at least two intersubnetwork connections is a broadband connection (see Fig. 1, wherein IMA1-4 are 10Gbits/s), such as an ADSL connection.

Regarding claim 11, wherein at least one of the inverse multiplexers is arranged for distributing the inverse multiplex data signals over the intersubnetwork connections connected with the inverse multiplexer according to a predetermined distribution

criterion (see Fig. 1, wherein a 40Gbit/s signal DSA is distributed into four 10 Gbit/s IMA signals).

Regarding claim 12, wherein the inverse multiplexer is arranged for transmitting an amount of inverse multiplex data signals over each of the subnetwork connections in proportion with the bandwidth of the respective intersubnetwork connection (see Fig. 1, wherein a 40Gbit/s signal DSA is distributed into four 10 Gbit/s IMA signals).

Regarding claim 13, wherein the inverse multiplexer is arranged for transmitting an amount of inverse multiplex data signals over each of the intersubnetwork connections in proportion with the number of intersubnetwork connections (see Fig. 1, wherein a 40Gbit/s signal DSA is distributed into four 10 Gbit/s IMA signals).

Regarding claim 14, wherein the second subnetwork comprises a shared inverse demultiplexer and/or inverse multiplexer for inverse demultiplexing and/or multiplexing original data from and/or for the combined nodes (see MUX, or a inverse demultiplexer, for multiplexing the IME1-4 to the original data DSE in Fig. 1).

Regarding claim 15, wherein the second subnetwork comprises a plurality of inverse demultiplexer and/or inverse multiplexers, each of inverse demultiplexing and/or multiplexing of original data from and/or for a respective node from the first subnetwork (see the plurality of MUX shown in Fig. 1 multiplexing the IMEs from the first subnetwork).

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

14. Claims 3-4 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mueller as applied to claim 1 above, and further in view of Ferguson (US 2002/0041604).

Mueller disclose the claimed limitations as shown above.

Mueller does not disclose the following features: regarding claim 3, wherein the intersubnetwork connections comprise different local loop telephone connections; regarding claim 4, wherein at least two nodes on the first subnetwork side are located in different buildings; regarding claim 8, wherein at least one of the broadband connection

has a data throughput speed between 0.5 and 2.0 Mbps in the direction from the second subnetwork to the first subnetwork.

Ferguson discloses an SDH multiplexer with AIM facilities including the following features.

Regarding claim 3, wherein the intersubnetwork connections comprise different local loop telephone connections (see Fig. 1, which shows the intersubnetwork connections, or the AIM shown in Fig. 5, which are used by "linking...sub-networks...by one telephone company to another" recited in paragraph [0004]).

Regarding claim 4, wherein at least two nodes on the first subnetwork side are located in different buildings (as shown in Fig. 3, the sub-networks is a telephone sub-network, which is known to have user nodes to be located in different buildings/locations in a neighborhood).

Regarding claim 8, wherein at least one of the broadband connection has a data throughput speed between 0.5 and 2.0 Mbps in the direction from the second subnetwork to the first subnetwork (see "1.5 or 2Mbit/s" recited in paragraph [0003]).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Mueller, using features as taught by Ferguson, in order to allow telephone providers to connect its sub-network to one another.

15. Claims 5 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mueller as applied to claim 1 above, and further in view of Roberts (US 6,959,019).

Mueller disclose the claimed limitations as shown above.

Mueller does not disclose the following features: regarding claim 5, routing units which each comprises a combination of one of the inverse multiplexers and one of the system multiplexers, wherein each routing unit, for interchanging the inverse multiplex data signals with the node, is, without intervention of one of the other routing units, connected with a respective node, and via at least one of the routing units with other nodes than the respective node; regarding claim 9, wherein the number of intersubnetwork connection is smaller than the number of nodes connectable with the connecting system in the first subnetwork.

Roberts discloses an aharmonic interleaving method of forward error corrected signals including the following features.

Regarding claim 5, routing units which each comprises a combination of one of the inverse multiplexers and one of the system multiplexers (see Fig. 2, which shows a routing unit 8 including inverse multiplexers 22a-m and system multiplexer 26), wherein each routing unit, for interchanging the inverse multiplex data signals with the node (see Fig. 2, which includes nodes connected to routing unit 8 via lines 10a-m; the nodes are not shown in the figure, but as shown in Mueller, these nodes are represented by Rout1 and the routing unit is shown as the DMUX in Mueller), is, without intervention of one of the other routing units (see Fig. 1, wherein the nodes are connected to the routing unit 8 without intervention of any other routing unit), connected with a respective node (see Fig. 1, wherein routing unit 8 is connected with nodes 10a-m without intervention of other routing units), and via at least one of the routing units with other nodes than the

respective node (see Fig. 1, wherein routing unit 8 is connected to nodes 16a-m via another routing unit 14).

Regarding claim 9, wherein the number of intersubnetwork connection is smaller than the number of nodes connectable with the connecting system in the first subnetwork (see Fig. 1, wherein m possible connectable nodes are uses one intersubnetwork connection, represented by connection 12; that is, using the multiplexers 8 in place of the DMUX of Mueller and replacing the IMAs of Mueller using intersubnetwork connection 12 of Roberts).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Mueller, using features as taught by Roberts, in order to reduce cost of the network by increasing the spectral density of the transmission (see Roberts, columns 1, lines 21-50).

16. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mueller and Roberts as applied to claim 5 above, and further in view of Okumura (US 2006/0007950).

Mueller and Roberts disclose the claimed limitations as shown above.

Roberts also discloses the following features.

Regarding claim 6, wherein at least one of the routing units is connected via a regular connection with its respective node (see Fig. 1, wherein the routing unit 8 is connected to its respective nodes via regular connections 10a-m).

Mueller and Roberts do not disclose the following features: regarding claim 6, wherein the routing unit is connected via a wireless transmission connection for communication with at least one of the other routing units for interchanging the inverse multiplex data signals with the other nodes than the respective node.

Okumura discloses a data multiplexing method including the following features.

Regarding claim 6, wherein the routing unit is connected via a wireless transmission connection for communication with at least one of the other routing units for interchanging the inverse multiplex data signals with the other nodes than the respective node (see Fig. 15, wherein the routing unit 15 is connected to another routing unit 23 via wireless transmission connection connected via antenna 17, 18, 21 and/or 29).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Mueller and Roberts, using features as taught by Okumura, in order to the communication of wireless subnetworks.

17. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mueller as applied to claim 1 above, and further in view of Kubo (US 7,440,475).

Mueller disclose the claimed limitations as shown above.

Mueller does not disclose the following features: regarding claim 10, wherein the number of intersubnetwork connections is equal to the number of end nodes in the first subnetwork connectable with the second subnetwork via the intersubnetwork connection.

Kubo discloses an error-correction multiplexing apparatus including the following features.

Regarding claim 10, wherein the number of intersubnetwork connections is equal to the number of end nodes in the first subnetwork connectable with the second subnetwork via the intersubnetwork connection (see Fig. 1 and Fig. 2, wherein one STM-64 connection is connected to the multiplexer/demultiplexer unit and only one intersubnetwork connection, shown as the FEC FRAME in Fig. 2 is output from the FEC multiplexer device).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Mueller, using features as taught by Kubo, in order to correct transmission errors.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JUTAI KAO whose telephone number is (571)272-9719. The examiner can normally be reached on Monday ~Friday 7:30 AM ~5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kwang Yao can be reached on (571)272-3182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Ju-Tai Kao

/Ju-Tai Kao/
Acting Examiner of Art Unit 2416

/KWANG B. YAO/
Supervisory Patent Examiner, Art Unit 2416